UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/598,249	06/21/2000	Masanobu Shimanuki	04329.2324	7295

22852 7590 10/15/2003	EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.　　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

　　4a) Of the above claim(s) *17-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *17-22* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

　　If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☒ All　b)☐ Some * c)☐ None of:

　　　1.☒ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____ .

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　　　application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　　a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *1* .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I.   **Claims 1-16**, drawn to a temperature compensating circuit, classified in

class 331, subclass 176.

II.   **Claims 17-22**, drawn to a radio unit, classified in class 455, subclass 255.

The attorney for this case, Rich Burgujian (202-408-4000), stated on 9-17-03 that the

applicant **elected claims 1-16** Claims 18-22 have been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 rejected under 35 U.S.C. 102(b) as being anticipated by Taketoshi et

al. JP08265044A.

As per **claim 1**, Taketoshi teaches A temperature compensating circuit for
compensating an operation of an electronic circuit having a temperature characteristic
(purpose), comprising:
temperature-detecting means for detecting an ambient temperature of the
electronic circuit; and temperature compensation control means (Constitution teaches
temperature sensor #8) comprising:
correction data storage means for storing correction data generated from the
detection characteristic of the temperature-detecting means and the temperature
characteristic of the electronic circuit so as to correct a detection error contained in the
detection characteristic and the temperature characteristic (Constitution teaches
EEPROM #9 that stores plural transmission signal patterns and offset data quantizing
temperature characteristics over a prescribed temperature range); and
correction processing means for correcting the operation of the electronic circuit
on the basis of the ambient temperature detected by the temperature-detecting means
and the composite correction data stored in the correction data storage means

(Constitution teaches control circuit #6 that corrects the signal based on temperature reading).

With further regard to claim 2, Taketoshi's teaching of an EEPROM that stores multiple values reads on first and second storage means and first/second correction data from temperature and characteristic curve.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-5, 7, 9, 12 and 14-16 rejected under 35 U.S.C. 103(a) as being

unpatentable over Taketoshi and further in view of Osamu JP09307355.

As per **claims 3-5**, Taketoshi teaches a temperature compensating circuit for compensating an operation of an electronic circuit having a temperature characteristic, comprising: temperature detecting means having a detection characteristic and for detecting an ambient temperature of the electronic circuit; and temperature compensating control means (Purpose) comprising:

first storage means for storing a corrected temperature corresponding to the detected ambient temperature;

second storing means for storing an operation data of the electronic circuit corresponding to a corrected temperature; and

correction processing means for selectively reading, from the first storage means, a temperature corresponding to the ambient temperature detected by the temperature detecting means, and for operation of electronic circuit on the basis of the temperature and the stored operation data of the electronic circuit corresponding to the temperature (Constitution teaches an EEPROM that stores values for current temperature and offset data quantizing a temperature characteristic curve reads on the applicant's first/second storage means) **but is silent on** "detection errors, each being a difference between the detected temperature and a value expected from the detectection characteristic of the temperature detecting means".

Osamu teaches a frequency correcting means, based on temperature, that mathematically predicts the temperature characteristic which reads on an "expected value".

It would have been obvious to one skilled in the art at the time of the invention to modify Taketoshi, such that detection errors are compensated for from detected and expected values, to provide means for error-compensation of temperature sensing.

As per **claims 7, 12 and 14-16,** Taketoshi teaches a temperature compensating circuit for compensating an operation of an electronic circuit
having a temperature characteristic; comprising: temperature detecting means having a detection characteristic and designed to detect an ambient temperature of the electronic circuit; and temperature compensation control means (Purpose) comprising:

first and second storage means for storing data items obtained, temperature-detecting means and a value corresponding to the representative value from the detection characteristic of the temperature-detecting means;

second storing means for storing an operation data of the electronic circuit corresponding to a corrected temperature; and

correction/control processing means for temperature on the basis of the ambient temperature detected by the temperature detecting means and for operation of electronic circuit on the basis of the temperature and the stored operation data of the electronic circuit corresponding to the temperature (Constitution teaches temperature sensor, EEPROM storage, control circuit and oscillator circuit).

But is silent on dividing a range of temperatures to be detected/actually detected and generating a difference AND to temperature values expected from the detection means.

Taketoshi teaches a temperature characteristic curve which provides a continuous range (seeTaketoshi's figures) and reads on the claim. The applicant stores discrete values which are not continuous and must divide several number together to arrive at a value that is somewhere between two stored values. Taketoshi has a continuous curve of values that are directly obtained from the curve to yield the same result.

Osamu teaches a frequency correcting means, based on temperature, that mathematically predicts the temperature characteristic which reads on an "expected value".

It would have been obvious to one skilled in the art at the time of the invention to modify Taketoshi, such that detection errors are compensated for from detected and expected values AND a range of values, to provide means for error-compensation of temperature sensing and for each temperature value to be corrected as needed.

As per **claim 9,** Taketoshi teaches claim 7 wherein said electronic circuit is an oscillator circuit for generating a reference oscillation frequency (Constitution teaches the oscillating frequency of the oscillating circuit is adjusted by varying a level of voltage applied to a varactor diode which reads on the claim)

Claims 6 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over

Taketoshi.

As per **claims 6 and 13,** Taketoshi teaches a temperature compensating circuit
for compensating an operation of an electronic circuit having a temperature
characteristic, comprising: temperature detecting means having a detection
characteristic and designed to detect an ambient temperature of the electronic circuit;
and temperature compensation control means (Purpose) comprising:
    first storage means for storing temperatures representative value actually
detected by the temperature-detecting means;
    second storing means for storing an operation data of the electronic circuit
corresponding to a corrected temperature; and
    correction/control processing means for generating a temperature corresponding
to the detected ambient temperature detected and for the operation of electronic circuit
on the basis of the temperature and the stored operation data of the electronic circuit
corresponding to the temperature (Constitution teaches temperature sensor, EEPROM
storage, control circuit and oscillator circuit).
    But is silent on dividing a range of temperatures to be detected and generating
a difference.
    Taketoshi teaches a temperature characteristic curve which provides a
continuous range and reads on the claim. The applicant stores discrete values which
are not continuous and must divide several number together to arrive at a value that is
somewhere between two stored values. Taketoshi has a continuous curve of values
that yields the same result.
    It would have been obvious to one skilled in the art at the time of the invention to
modify Taketoshi, such that a difference is obtained from a range of temperature values,
to provide means for obtaining a correction value for any temperature
calculated/measured.

Claims 8 and 10-11 rejected under 35 U.S.C. 103(a) as being unpatentable over

Taketoshi and further in view of Masa JP04236517.

As per **claim 8,** Taketoshi teaches claim 2 **but is silent on** wherein the first
storage means stores corrected temperatures obtained by correcting detection errors
contained in the temperature detected by the temperature detecting means, the second
storage means stores operation-correcting data items corresponding to the stored
corrected temperature, and the correction processing means supplies the detected
ambient temperature value detected by the temperature detecting means, as an
address, to the first storage means, thereby to read a corresponding corrected
temperature, supplies the corresponding corrected temperature, as an address, to the
second storage means, thereby to read a corresponding operation-correcting data, and

corrects the operation of the electronic circuit in accordance with the corresponding operation-correcting data.

Masa teaches offset address data to compensate for dispersion (eg. errors) in a temperature detectore (Constitution).

It would have been obvious to one skilled in the art at the time of the invention to modify Taketoshi, such that detection errors are corrected, to provide means for temperature sensing errors to be corrected.

As per **claim 10**, Taketoshi teaches an electronic apparatus comprising: an electronic circuit having a temperature characteristic and designed to perform an operation; a temperature-detecting circuit for detecting an ambient temperature of the electronic circuit; and a temperature compensation circuit (Purpose) comprising:

data storage means for storing data generated from the detection characteristic of the temperature-detecting circuit and the temperature characteristic of the electronic circuit for temperature-detecting circuit (Constitution); and

processing means for operation of the electronic circuit on the basis of the ambient temperature detected by the temperature-detecting circuit (Constitution).

But is silent on correction data for detection errors.

Masa teaches offset address data to compensate for dispersion (eg. errors) in a temperature detectore (Constitution).

It would have been obvious to one skilled in the art at the time of the invention to modify Taketoshi, such that correction data is calculated, to provide means for temperature sensing errors to be corrected.

As per **claim 11**, Taketoshi teachs claim 10, wherein the electronic apparatus includes a radio unit (eg. transmitter, Taketoshi's title) having an oscillator circuit, and a control circuit for controlling the operation of said radio unit, said temperature detecting circuit is provided in said radio unit, said temperature compensating circuit is provided in said control circuit to temperature-compensate the operation of said oscillator circuit based on the ambient temperature detected by said temperature detecting circuit (Constitution teaches oscillation circuit, temperature sensor and control circuit) **but is silent on** the composite correction data stored in an internal memory of said control circuit.

Masa teaches offset address data to compensate for dispersion (eg. errors) in a temperature detectore (Constitution).

It would have been obvious to one skilled in the art at the time of the invention to modify Taketoshi, such that correction data is stored, to provide means for temperature sensing errors to be corrected.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1. Suzuki US 6,026,278 teaches a radio having temperature compensation

2. Ma et al. US 4,746,879 teaches a temperature compensated VCO.

3. Wojoewoda et al. US 5,777,524 teaches temperature compensation CO.

4. Northcutt et al. US 6,278,867 teaches frequency generation.

5. Uda US 6,226,505 teaches frequency correction.

6. Daughtry Jr. et al. US 5,875,388 teaches CO with temperature compensation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

SMD

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